

60/2015

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Type of value stored in a variable can be identified using _____ of the variable.
(A) Variable Name (B) Data Type
(C) Variable Size (D) None of these
2. Two main measures for the efficiency of an algorithm are :
(A) Processor and memory (B) Complexity and capacity
(C) Time and space (D) Data and space
3. If two sets A and B have no common elements then such sets are known as :
(A) Union (B) Distinct
(C) Disjoin (D) Complement
4. _____ are used to over come the difference in data transfer speeds of various devices.
(A) Speed enhancing circuitry (B) Bridge circuits
(C) Multiple buses (D) Buffer registers
5. Cache memory works on the principle of :
(A) Locality of data (B) Locality of memory
(C) Locality of reference (D) Locality of reference and memory
6. If 11001101_2 is divided by 110_2 the remainder is :
(A) 101 (B) 11
(C) 0 (D) 1
7. The program that brings the object code into memory for execution is :
(A) Loader (B) Fetcher
(C) Extractor (D) Linker
8. The order in which the return addresses are generated and used is :
(A) LIFO (B) FIFO
(C) Random (D) Highest priority

9. The classification of BUSES into synchronous and asynchronous is based on :
- (A) the devices connected to them
 - (B) the type of data transfer
 - (C) the timing of data transfers
 - (D) none of the above
10. Which is not a magnetic storage device?
- (A) Hard disk
 - (B) Tape drive
 - (C) Compact disk
 - (D) All of these
11. In a digital representation of voltages using an 8-bit binary code, how many values can be defined?
- (A) 128
 - (B) 256
 - (C) 64
 - (D) 16
12. The memory used to hold the address of data stored in the cache is :
- (A) Associative memory
 - (B) Primary memory
 - (C) Secondary memory
 - (D) Register
13. _____ is a black box testing method.
- (A) Basic path testing
 - (B) Code path analysis
 - (C) Boundary value analysis
 - (D) Recovery testing
14. The strategy of temporarily suspending the running process is called :
- (A) First come first serve
 - (B) Shortest job first
 - (C) Preemptive scheduling
 - (D) Non-preemptive scheduling
15. Fork is :
- (A) Creation of a new job
 - (B) Dispatching of new task
 - (C) Creation of new process
 - (D) Increasing priority of process
16. Resolution of externally defined symbol is done by :
- (A) Linker
 - (B) Loader
 - (C) Compiler
 - (D) Assembler
17. In _____ topology, whole network goes down, if a computer's network cable is broken.
- (A) Ring
 - (B) Star
 - (C) Bus
 - (D) Token ring

18. Baudot code uses _____ bits per symbol.
- (A) 3 (B) 5
(C) 6 (D) 8
19. Which of the following problem is undecidable?
- (A) Membership problem for CFL (B) Membership problem for regular sets
(C) Fitness problem for FSAs (D) Ambiguity problem of CFGs
20. Image compression is :
- (A) reducing the size of image to fit to screen
(B) making image look better
(C) reducing the redundancy of image data
(D) reducing degradation over image
21. Basic steps for filtering in the frequency domain :
- (A) Fourier transform (B) Filter function
(C) Inverse Fourier transform (D) All of the above
22. What is the difference between a simulator and an emulator in embedded system development?
- (A) Emulator runs in target system, simulator runs in development system
(B) Simulator runs in target system, emulator runs in development system
(C) Emulator is indented for assembly language testing, simulator intended for high level language testing
(D) Simulator is indented for assembly language testing, emulator intended for high level language testing
23. Type checking is normally done by :
- (A) Lexical analyzer (B) Code optimizer
(C) Syntax analyzer (D) Linear analyzer
24. Producer consumer problem can be solved using :
- (A) monitors (B) semaphores
(C) event counters (D) all the above

25. Time To Live field in the ip header is used :
- (A) to find the shortest path
 - (B) to find alternate path
 - (C) to avoid infinite loops
 - (D) to reduce the size of packet
26. AGING is a technique used in :
- (A) FCFS
 - (B) Round Robin
 - (C) Priority scheduling
 - (D) Pre-emptive scheduling
27. The term used to refer to a row in database is :
- (A) Field
 - (B) Tuple
 - (C) Attribute
 - (D) Entry
28. In a microprocessor the register that keeps the results of arithmetic or logic operation is :
- (A) Program counter
 - (B) Flag register
 - (C) Accumulator
 - (D) Stack register
29. Thrashing occurs when a :
- (A) Computer's virtual memory subsystem is in a constant state of paging
 - (B) Computer's main memory got exhausted
 - (C) Computer's processes are in indefinite dead lock
 - (D) None of the above
30. A system program that sets up a program in main memory ready for execution is :
- (A) Assembler
 - (B) Linker
 - (C) Editor
 - (D) Loader
31. For large networks, _____ topology is used.
- (A) Bus
 - (B) Star
 - (C) Ring
 - (D) Mesh
32. ARPANET stands for :
- (A) American Research Project Agency Network
 - (B) Asian Research Project Agency Network
 - (C) Ad-hoc Research Project Agency Network
 - (D) Advanced Research Project Agency Network

33. Every context sensitive language is :
- (A) Recursive enumerable language (B) Recursive language
(C) Context free language (D) Context sensitive language

34. The permitted values of each attributes of a relation is called its :
- (A) Set (B) Tuple
(C) Schema (D) Domain

35. The addressing mode in which you directly give the operand value is :
- (A) Relative (B) Direct
(C) Definite (D) Immediate

36. What is the value of j after the execution of the following code?

```
int j=0;
int N=10;
while(j<N)
{
    j=j+1;
}
```

- (A) 0 (B) 9
(C) 10 (D) 11
37. The address generated by CPU is :
- (A) Physical address (B) Absolute address
(C) Logical address (D) Memory address

38. IEEE 802.11 standard for wireless LAN uses _____ multiple access technique.
- (A) CDMA (B) ALOHA
(C) CSMA/CA (D) All of these

39. The worst-case complexity of heap sort is :
- (A) $n \log n$ (B) n^2
(C) $\log n$ (D) N

40. A protocol used for secure sending of data over the Internet is :
- (A) SMTP (B) FTP
(C) HTTPS (D) TCP/IP

41. The _____ method provides a one-time session key for two parties.
- (A) Diffie-Hellman (B) Public key
(C) RSA (D) DES
42. How many root element an XML document can have?
- (A) Any number as required (B) One
(C) Two (D) Only limited by available memory
43. Which of the following is a goal of data mining?
- (A) To extract some observed event or condition
(B) To analyze data for expected relationships
(C) To create new database
(D) None of the above
44. Critical path of the PERT chart is :
- (A) Path which takes the longest time to complete the project
(B) Path which takes the shortest time to complete the project
(C) Path which takes the most appropriate time to complete the project
(D) None of the above
45. The language used by end users and programmers to manipulate data in a database is :
- (A) HTML (B) DML
(C) XML (D) GML
46. Secret key encryption is also known as :
- (A) Asymmetric encryption (B) Symmetric key cryptography
(C) RSA (D) DSA
47. What is a firewall?
- (A) Boundary of a network
(B) A routing software
(C) Software to prevent unauthorized access
(D) A web browsing software
48. Which normal form is based on multi-valued dependency?
- (A) First (B) Second
(C) Third (D) Fourth

49. `mov ax, bx` which addressing mode does this instruction use?
(A) Immediate (B) Indirect
(C) Register (D) Direct
50. An RTP packet is encapsulated in :
(A) a TCP segment (B) a UDP datagram
(C) an IP datagram (D) a SMTP packet
51. To prevent _____, we can timestamp the packets.
(A) Error (B) Jitter
(C) Loss (D) None of these
52. The complexity of Binary search algorithm is :
(A) $O(n)$ (B) $O(\log n)$
(C) $O(n/2)$ (D) $O(n \log n)$
53. If every node u in G is adjacent to every other node v in G , a graph is said to be :
(A) Isolated (B) Complete
(C) Finite (D) Strongly connected
54. To extend the connectivity of the processor bus we use :
(A) PCI bus (B) SCSI bus
(C) Controllers (D) Multiple bus
55. If 11001100_2 is divided by 110_2 the quotient is :
(A) 11011 (B) 1111
(C) 100010 (D) 100001
56. Which data structure allows deleting data elements from front and inserting at rear?
(A) Stacks (B) Queues
(C) Deques (D) Binary search tree
57. Which of the following data structure is linear type?
(A) Strings (B) Lists
(C) Queues (D) All of above

58. Speed of a microprocessor is determined by :
- (A) Address bus width (B) Data bus width
(C) Clock (D) None of the above
59. How many gates would be required to implement the following Boolean expression after simplification?
 $XY + X(X + Z) + Y(X + Z)$
- (A) 1 (B) 2
(C) 3 (D) 4
60. With a 200 kHz clock frequency, 16 bits can be serially entered into a shift register in _____ time.
- (A) 4 μ s (B) 80 μ s
(C) 80 ms (D) 8 ms
61. The principle of locality of reference is applied in the use of :
- (A) Virtual memory (B) Random access memory
(C) Cache memory (D) Optical memory
62. Parser is also known as :
- (A) Lexical analyzer (B) Code optimizer
(C) Syntax analyzer (D) Linear analyzer
63. The operation in relational algebra for viewing a set of tuples is :
- (A) Select (B) Project
(C) Union (D) Join
64. The average case complexity of linear search algorithm is :
- (A) $O(n)$ (B) $O(\log n)$
(C) $O(n^2)$ (D) $O(n \log n)$
65. Data Encryption standard is a :
- (A) Stream cipher (B) Block cipher
(C) Substitution cipher (D) None of these
66. Data about data is :
- (A) Database (B) Mega-data
(C) Metadata (D) Schema